

From Stroke to Strength: How Robotics Are Transforming Rehab Rebuilding Lives Through Research Transcript

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[music] Welcome to this episode, where we explore how science is reshaping recovery after stroke and brain injury. At the heart of this transformation is Kessler Foundation's cutting-edge research in robotic exoskeletons.

Dr. Karen J. Nolan and her team are leading clinical trials that investigate how wearable robotics can retrain gait, restore mobility, and even rewire the brain. This isn't just innovation - it's a shift in how we understand and treat neurological damage. Let's dive into the data, the discoveries, and the future of rehabilitation.

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Karen J. Nolan, PhD, associate director from the Center for Mobility and Rehabilitation Engineering Research, credits this trailblazing reputation to the vision of Liz Lowenstein, chair of the Kessler Foundation Board of Trustees from 2013 to 2016.

"It all started with a gift in 2014 to purchase a second robotic exoskeleton," Dr. Nolan recalls.

"Over the years, Liz, her husband David, and her family's Reitman Foundation have supported the expansion of our robotic exoskeleton research, and many other donors have followed suit."

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This has enhanced opportunities to collaborate with industry leaders and device manufacturers to investigate new exoskeleton technology. Using Kessler Foundation's research data, several devices gained FDA clearance.

"It is rewarding to work in a place that not only conducts life-changing research for patients but also provides feedback to the industry to improve technology for better outcomes," remarks Dr. Nolan.

Early successes paved the way for additional funding and greater progress, culminating in a large federal grant for the first clinical trial of exoskeletons in adults with acute stroke, a large and growing population in need of new avenues for rehabilitation.

Inpatients at Kessler Institute for Rehabilitation are eligible for the study, which entails intensive, repetitive training in the exoskeleton.

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SERENA: 02:27 "We believe that intervening soon after stroke using the exoskeleton to retrain the individual's gait will contribute to faster and more complete recovery," says Dr. Nolan.

SERENA: 03:23 More than just another clinical trial, the study marks a fundamental shift in treatment protocols. Because of your generosity, robotic exoskeletons are on the way to becoming a standard of care for the rehabilitation of mobility deficits after stroke and brain injury.

Reflecting on this journey, Dr. Nolan says, "We started with the question, 'How do wearable robots help walking?' Then, 'How do we maximize recovery?' Now, we are asking, 'How does intensive robotic therapy cause lasting changes in the brain?' These questions will continue to evolve until we achieve the best possible outcomes for people affected by brain injury and stroke."

As we wrap up, we're reminded that this research doesn't just change lives - it changes the future of rehabilitation. Kessler Foundation's work with robotic exoskeletons is redefining recovery for stroke and brain injury, proving that early, intensive intervention can lead to faster and more complete outcomes.

But this progress is only possible through continued support and collaboration. If you believe in the power of science to restore mobility and independence, share this episode, explore the research, and consider contributing to the next breakthrough.

Visit kesslerfoundation.org to learn more and be part of the movement that's helping people walk again - step by step.